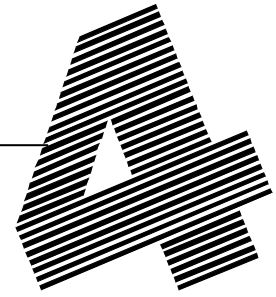


TeamFour

A R C H I T E C T S

14 North Newstead Avenue
St. Louis, Missouri 63108
314 / 533-2200 314 / 533-2203 Fax



Meeting Notes

Date:	September 2, 2009
Project:	GSA - WO #70 RAY ARRA Wind and PV Feasibility Study Follow-up LEED Discussion and Cafeteria Renovation RAY Federal Building
Project Numbers:	GSA Project #: IMO 00090 Team Four Project #: 29028.00
Purpose:	Kick-Off Meeting
Date of Meeting:	September 1, 2009
Location:	Robert A. Young Federal Building, GSA Conference Room
Participants:	GSA Denise Ryerkerk, GSA Project Manager John Nelson (via phone) Ken Hollingsworth (via phone) Glen Essink (via phone) Bob Minor (via phone) Chris Cockrill (via phone) Vickie Ford, GSA Tom Yochim, Property Manager Charlie Meyer, Field Office Director Lori Spiegel, Field Office Mark Martinez, Construction Representative Jacobs Eng. Group Mike Vuagniaux Team Four/Saur Bruce Hesterberg, Principal Bill Albinson, Principal Martha Pivinski Hellmuth+Bicknese Dan Hellmuth EDM Bob Warren Gary Neuhaus Ted Bergen
Distribution:	All Participants

Introduction

1. Attendees were introduced.
2. The purpose of the meeting was to kick-off the Feasibility Study for wind turbines, photovoltaic systems and other possible renewable energy sources for the RAY Building. Also included on the agenda was more discussion of LEED strategies related to ARRA projects and the RAY Building.

Technology Discussion related to Wind

3. It should be determined if there is enough wind speed in this area and at the RAY Building location for wind to be a viable renewable energy source. The higher building may improve the opportunity but introduce structural and maintenance issues.
4. Small vertical axis turbines can sometimes overcome wind speed limitations.
5. At another location, a 6 foot diameter propeller in a cage was placed on a parapet to take advantage of updraft.

Technology Discussion related to Photovoltaic Systems

6. Available square footage on the roof and existing roof equipment present constraints for the RAY Building.
7. The current roof is modified bitumen with a light colored reflective coating. All roof work must involve the roofing contractor (Garland) because of maintenance and warranty issues.
8. No more than 3%-4% of building energy could be provided by a PV system.
9. The efficiency and costs of different types of panels such as polycrystalline (flat) and amorphous silicates (thin film flexible) should be explored.
10. Including a battery system is not being considered.
11. Although electricity is not sold back to the utility, there must be a tie-in with Ameren. Also, Ameren will have requirements for cut-off locations.
12. The study should consider PV awnings. Possible locations are the south façade for the added advantage of sunlight control, and roof penthouses. Concerns are exposed interconnection wiring, safety below, and window washing interference.
13. There are ballasted PV systems to avoid roof penetrations.
14. The life cycle of PV panels is 20-30 years. The inverters have a shorter life. The number of inverters is dependent on the array configurations and the level of redundancy required. Design for a PV system will require a shading study for panel placement and wiring.
15. PV systems are considered low maintenance but could present maintenance problems for the roof.
16. The study should investigate if there are any issues with toxic compounds or fire hazards.
17. Some of the structural issues relate to the concrete slab roof deck and the lack of available structural steel, the parapet construction, and the interlocking metal roofs at penthouse locations.

General Technology Discussion related to Wind and PV

18. The tower portion of the building is considered historic. GSA will deal with state authorities for historic issues.
19. Tom Yochim and Chris Cockrill will do follow-up on the Ameren Incentive Program.

General LEED Discussion

[REDACTED]

LEED Discussion related to LEED-New Construction and Major Renovation

[REDACTED]

LEED Discussion related to Existing Building: Operations & Maintenance

[REDACTED]

September 3, 2009

[REDACTED]

Discussion related to the Cafeteria Renovation

[REDACTED]

This is my record of the decisions and discussion at this meeting. Please respond within seven days with any additions or corrections. Following that time, this document will reflect the actions and decisions of the meeting.

Respectfully,

Bruce L. Hesterberg, AIA, Principal/Project Manager

Attachments: Sign-in Sheets
Agenda

K:\29028.00 GSA-WO70 RAY Wind Turbine & PV Feasibility\B4 Meeting Notes\MTG-NOTES Wind-PV 09-01-09.doc

GSA RAY ARRA
Wind & Photo Voltaic Study
Work Order 70

Meeting Agenda

September 1, 2009, 9:30 AM, RAY Building GSA Conference Room

Introductions

Schedule & Deliverables

Week of Sept 14	On Board Workshop – Progress to Date
Week of Sept 21	95% Report Draft
Week of Sept 28	95% Report Review Meeting
Week of Oct 4	Final Report

Technical Discussion Items

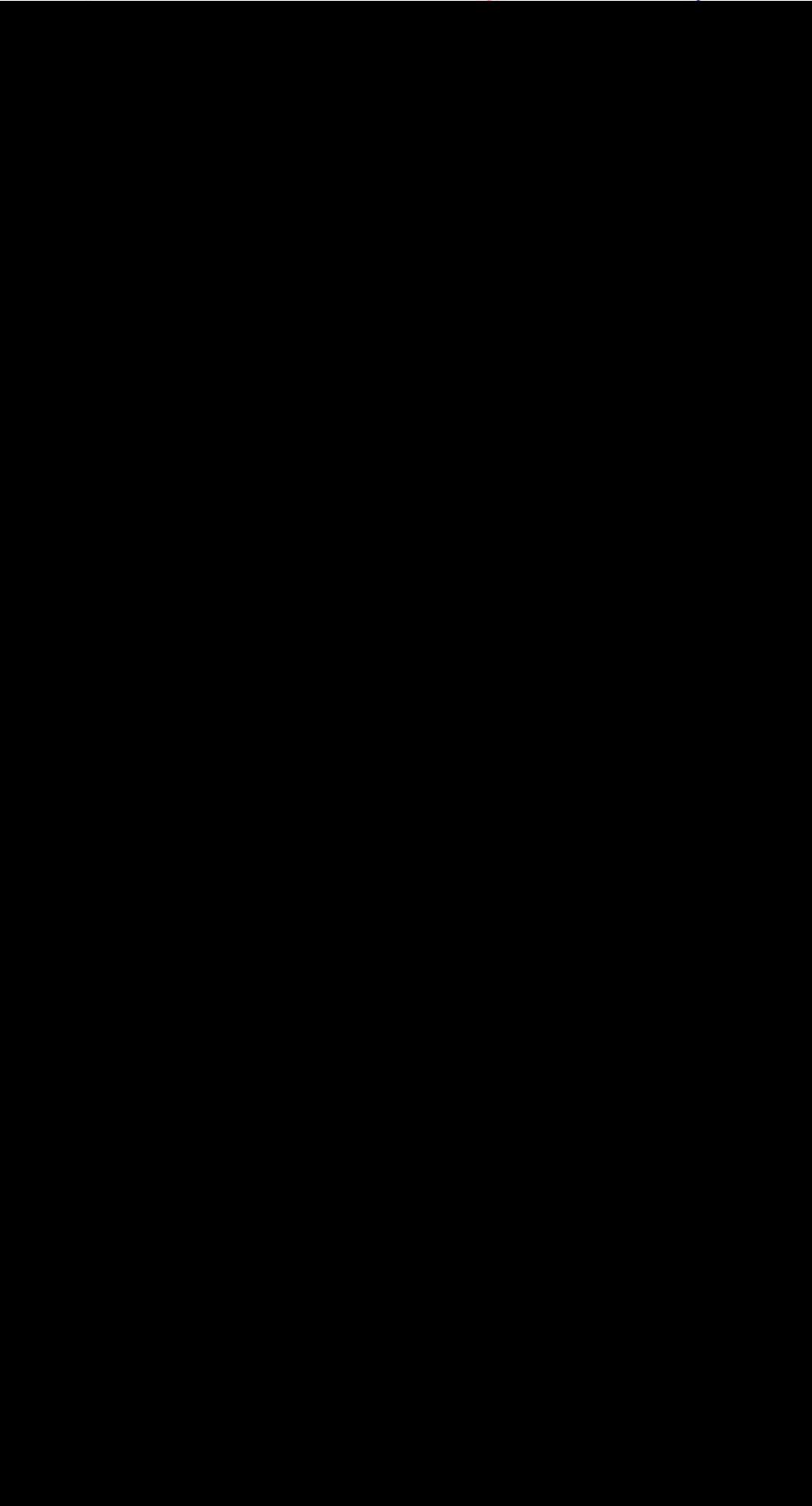
- 1 Technology and Equipment Options for Wind and Photovoltaic Energy
- 2 Functional Roof Areas
- 3 Regulatory Aspects
- 4 Solar Exposure
- 5 Wind Forces
- 6 Structural Conditions & Limitations
- 7 Electrical Connections & Controls
- 8 Information gathered from the Utility
- 9 Other Alternative Energy Sources and Approaches

LEED Discussion

- 1 Follow up on Operations and Maintenance Category of LEED Report
- 

Next Steps

Roof Tour



10.					
11.					
12.					
13.					
14.					

General Services Administration
Public Buildings Service
1500 East Bannister Road

Meeting Attendance

